



# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

Application No. 10/772,584

Inventor: Jean-Luc DE GOUY

Replacement Sheet

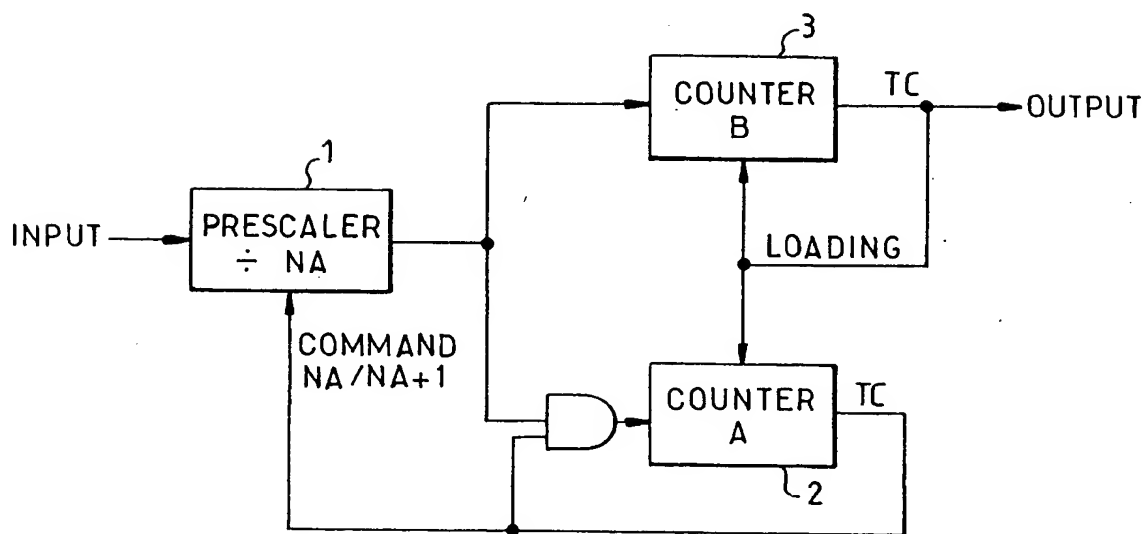


FIG.1

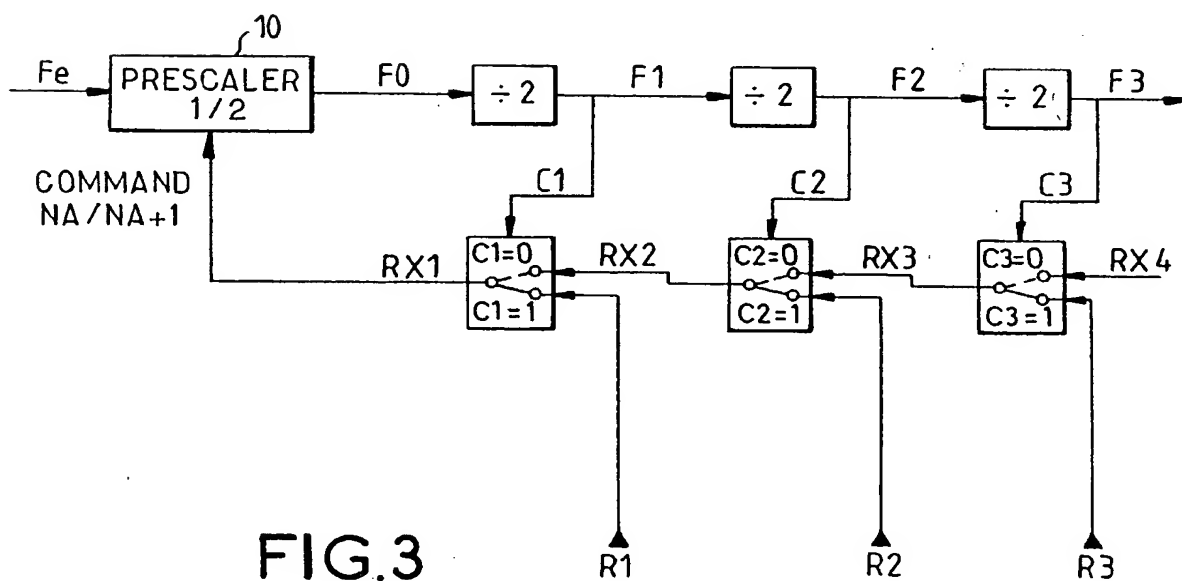


FIG.3

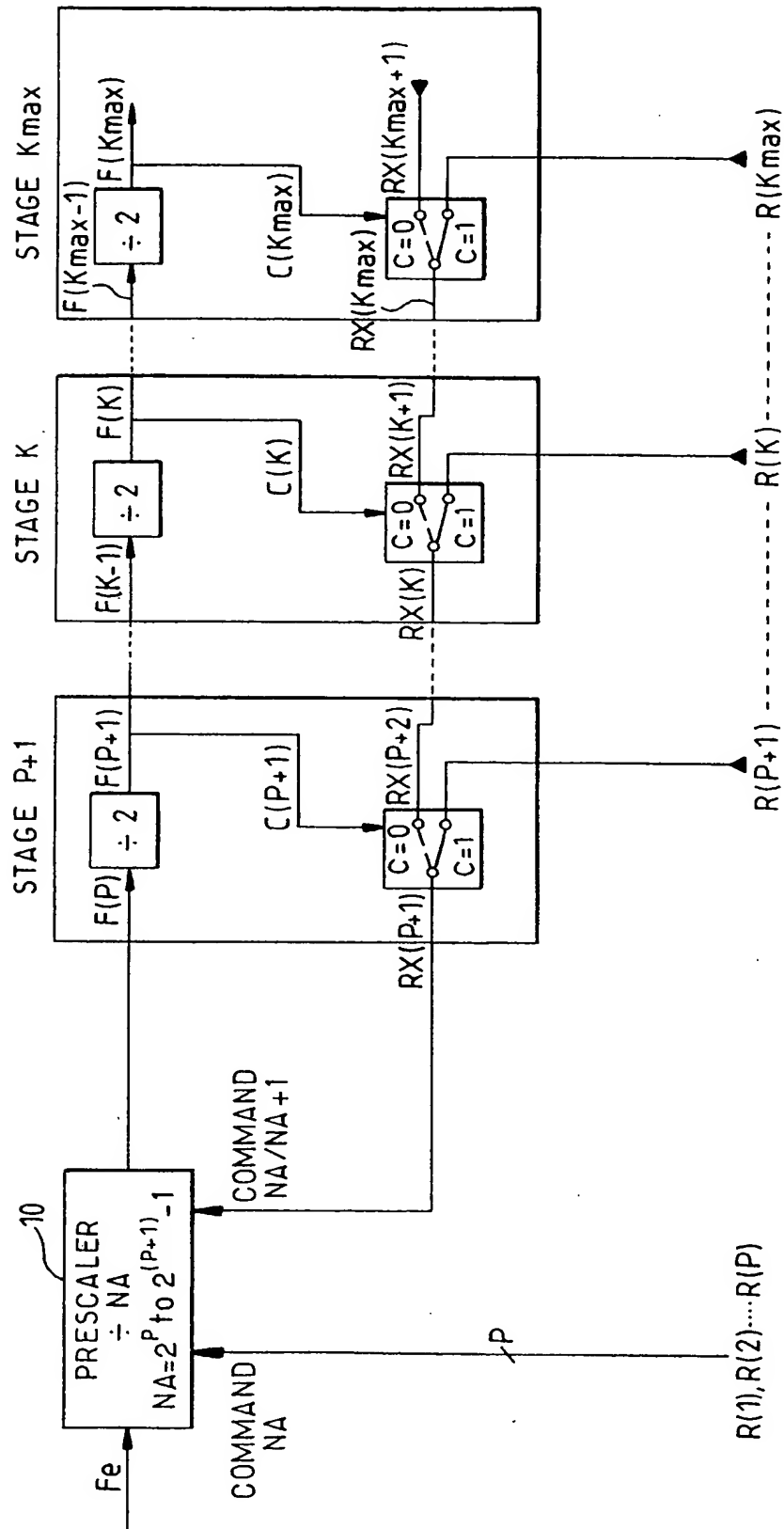


FIG. 2

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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	STATE OF F3	HIGH				LOW			
RX3	VALUE	R3				RX4			
	STATE OF F2	HIGH		LOW		HIGH		LOW	
RX2	VALUE	R2		R3		R2		RX4	
	STATE OF F1	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW
RX1	VALUE	R1	R2	R1	R3	R1	R2	R1	RX4
	DURATION / Te HIGH STATE + LOW STATE	1+R1	1+R2	1+R1	1+R3	1+R1	1+R2	1+R1	1+RX4
F <sub>0</sub>	STATE	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW
	DURATION / Te	1+R1	1+R2	1+R1	1+R3	1+R1	1+R2	1+R1	1+RX4
F <sub>1</sub>	STATE	HIGH		LOW		HIGH		LOW	
	DURATION / Te	2+R1+R2		2+R1+R3		2+R1+R2		2+R1+RX4	
F <sub>2</sub>	STATE	HIGH		HIGH		LOW		LOW	
	DURATION / Te	4+2R1+R2+R3		4+2R1+R2+R3		4+2R1+R2+RX4		8+4R1+2R2+R3+RX4	
F <sub>3</sub>	DURATION / Te	4+2R1+R2+R3		4+2R1+R2+R3		4+2R1+R2+RX4		8+4R1+2R2+R3+RX4	
	DURATION / Te OF THE FRAME	4+2R1+R2+R3		4+2R1+R2+R3		4+2R1+R2+RX4		8+4R1+2R2+R3+RX4	

FIG.4

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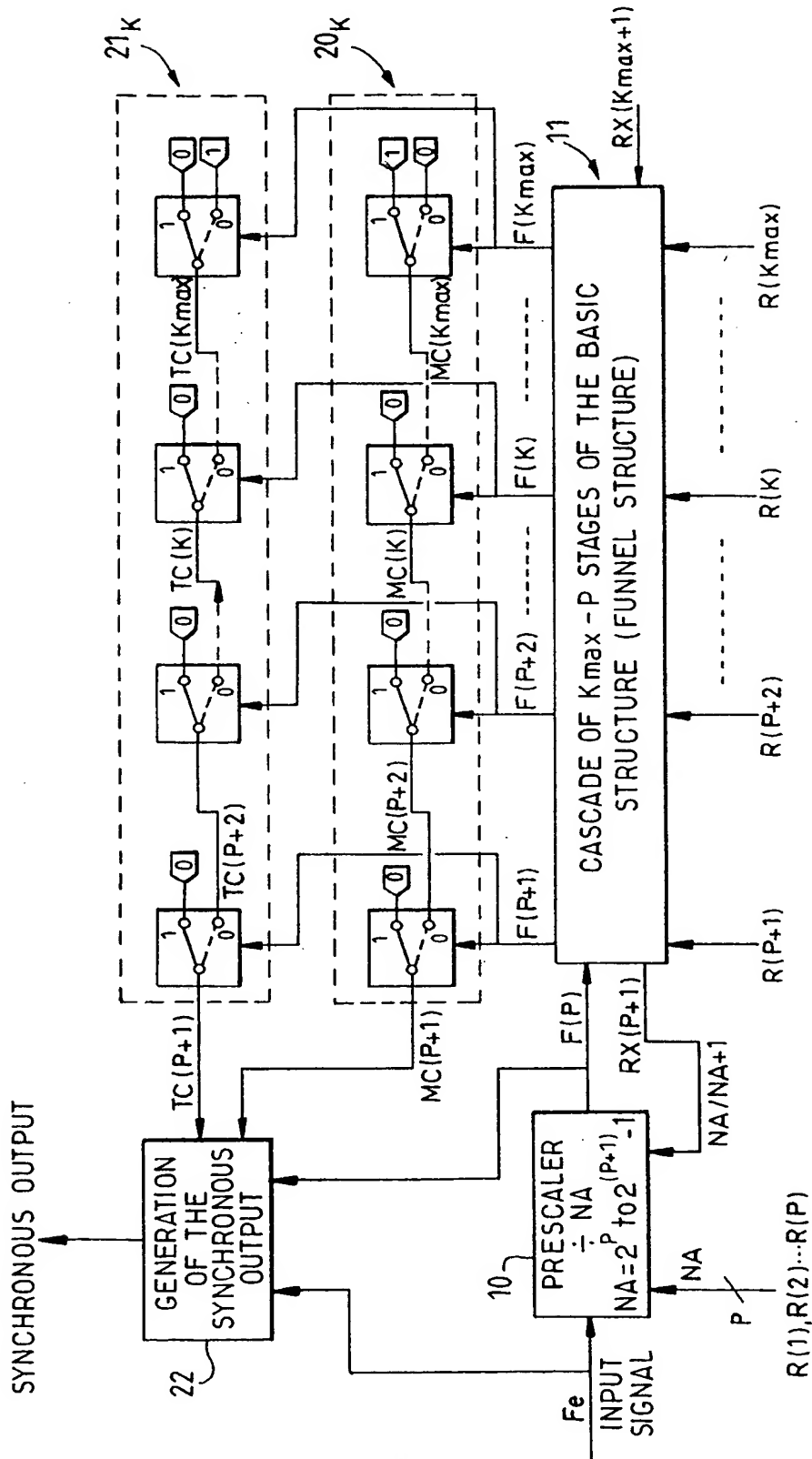


FIG.5A

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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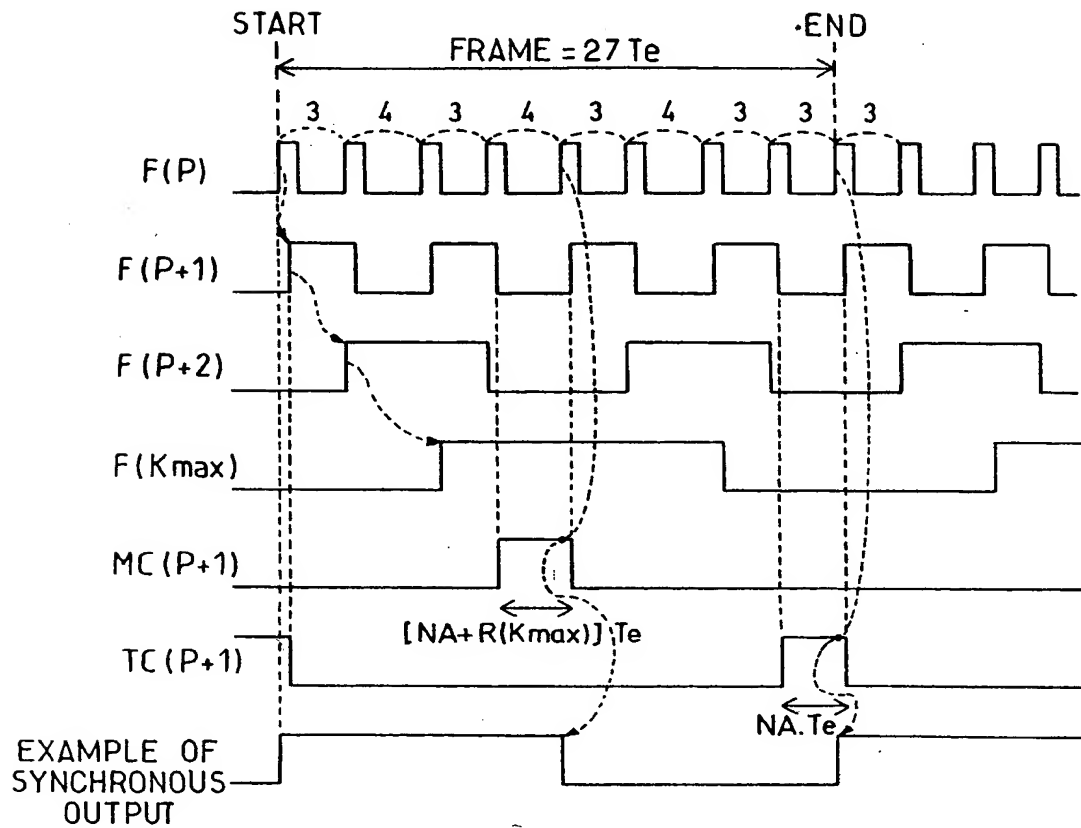


FIG. 5B

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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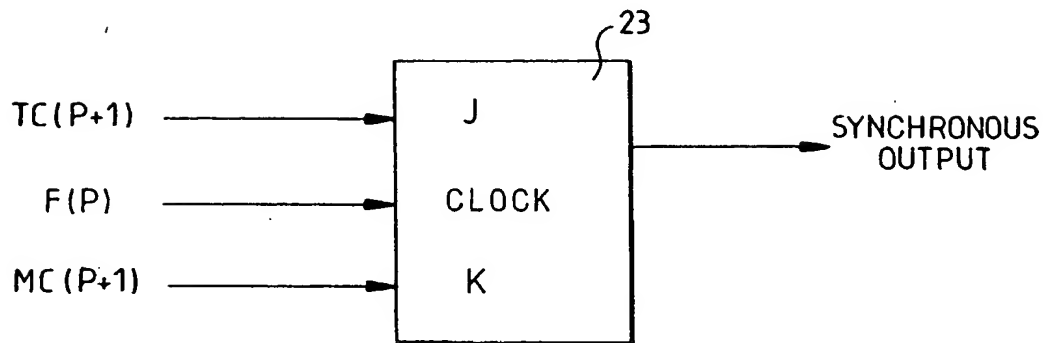


FIG.6

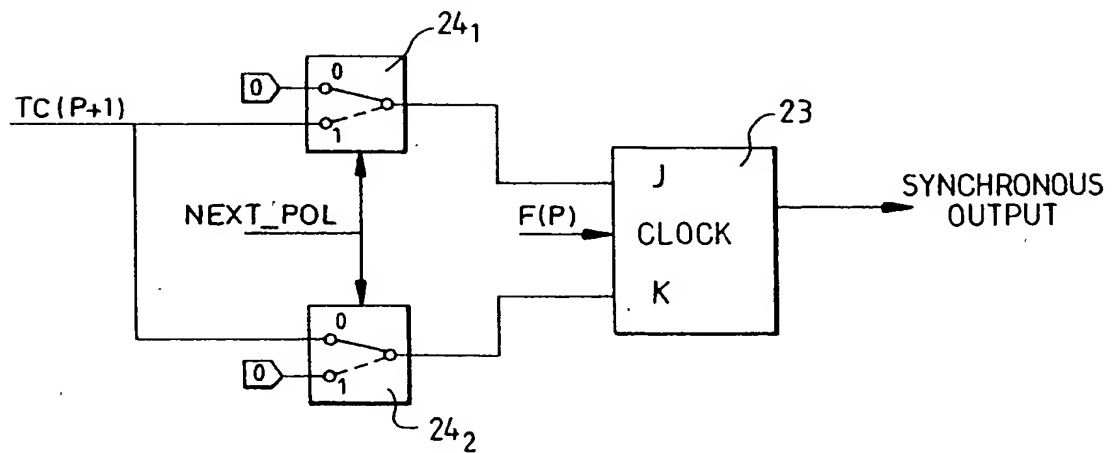


FIG.7

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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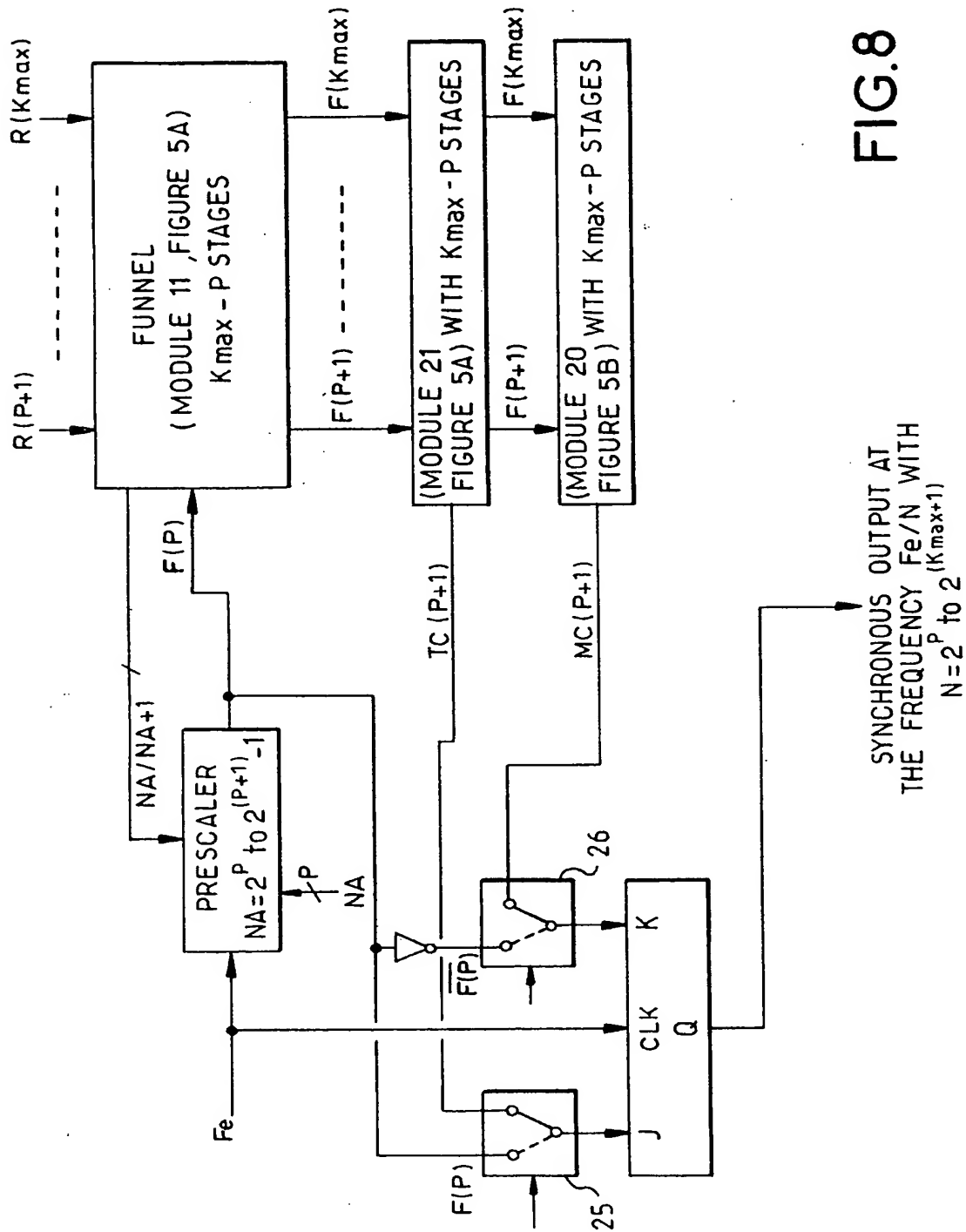


FIG.8

SYNCHRONOUS OUTPUT AT  
THE FREQUENCY  $F_e/N$  WITH  
 $N = 2^P \text{ to } 2^{(K_{max}+1)}$

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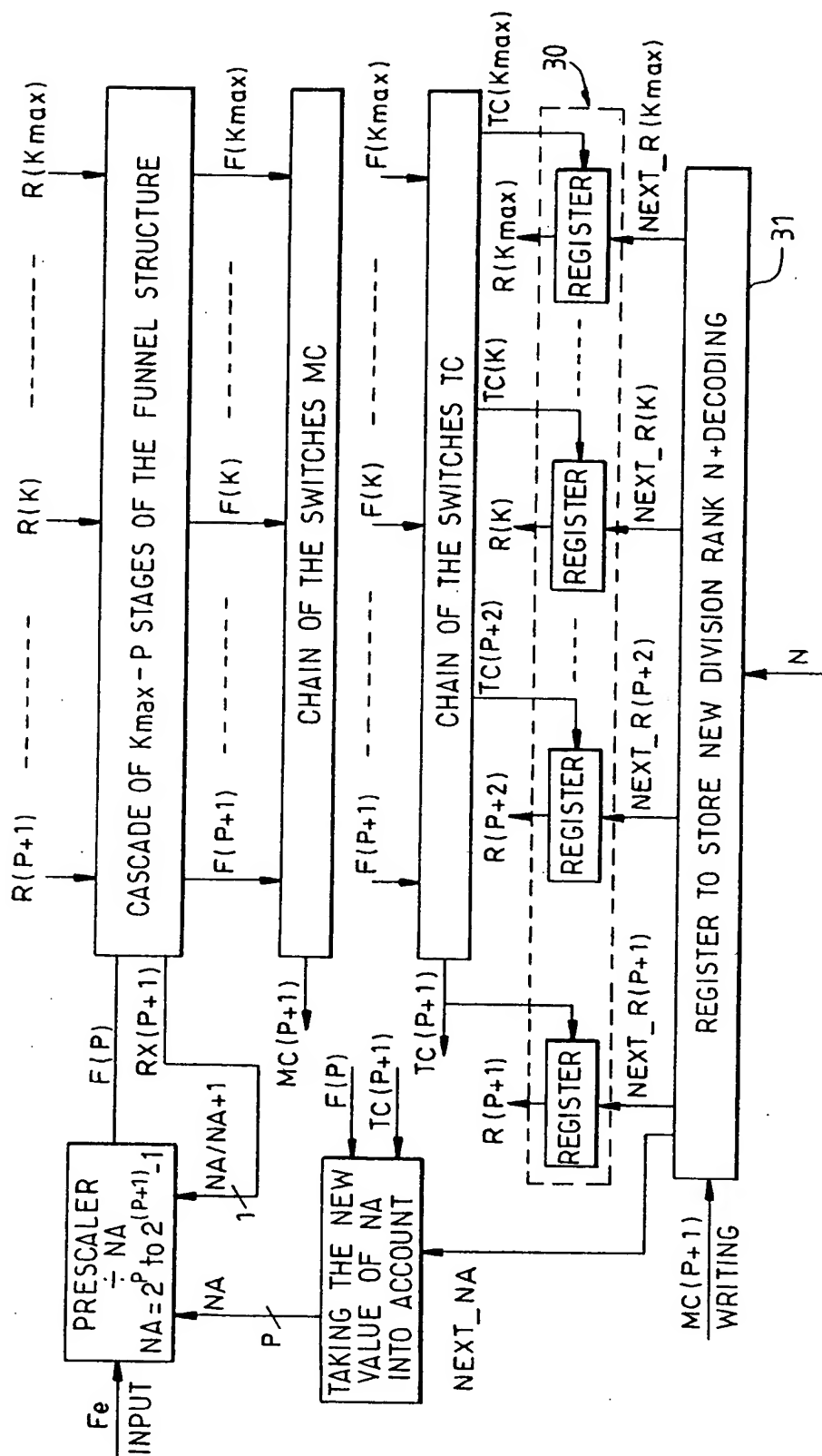


FIG.9



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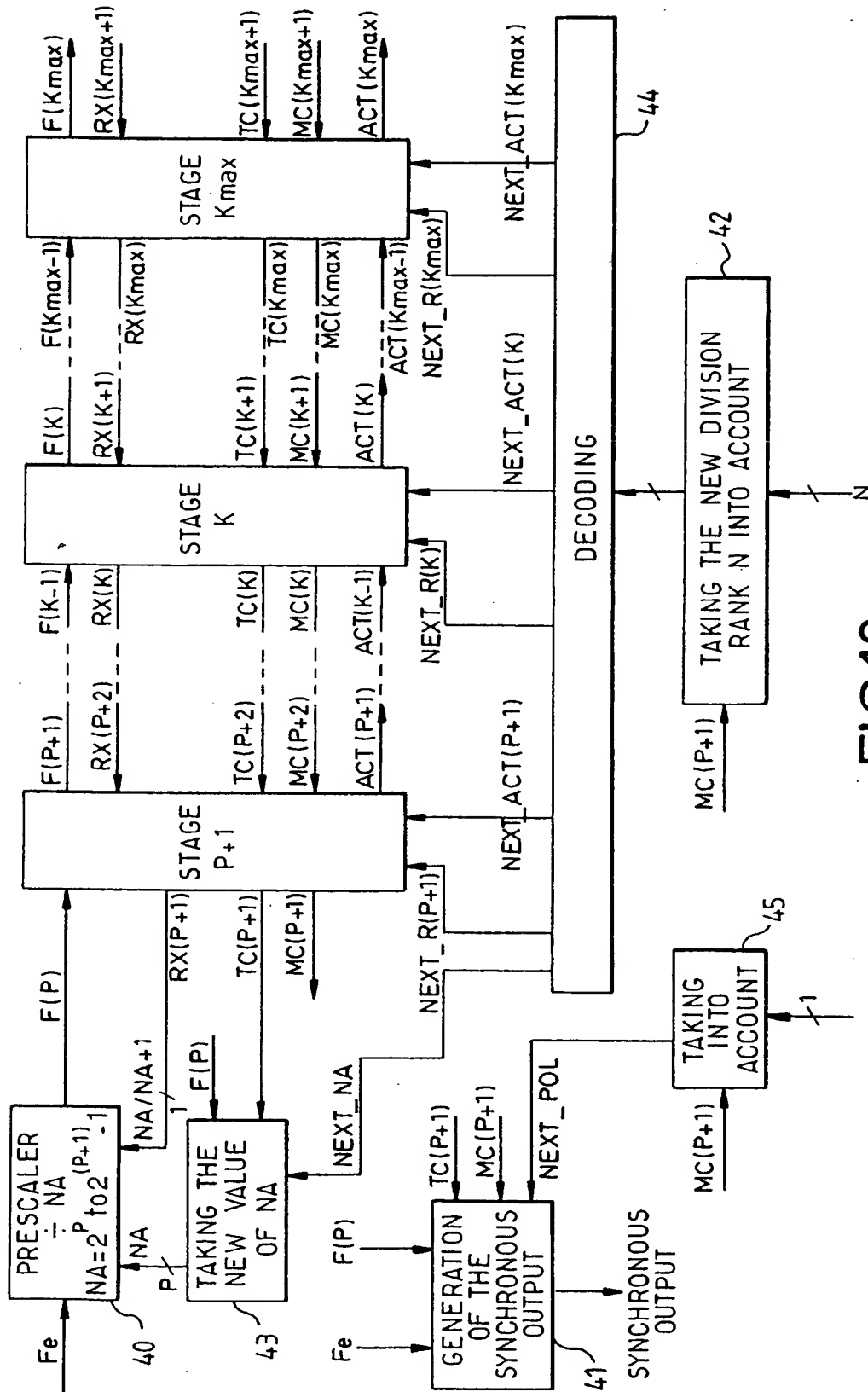


FIG.10

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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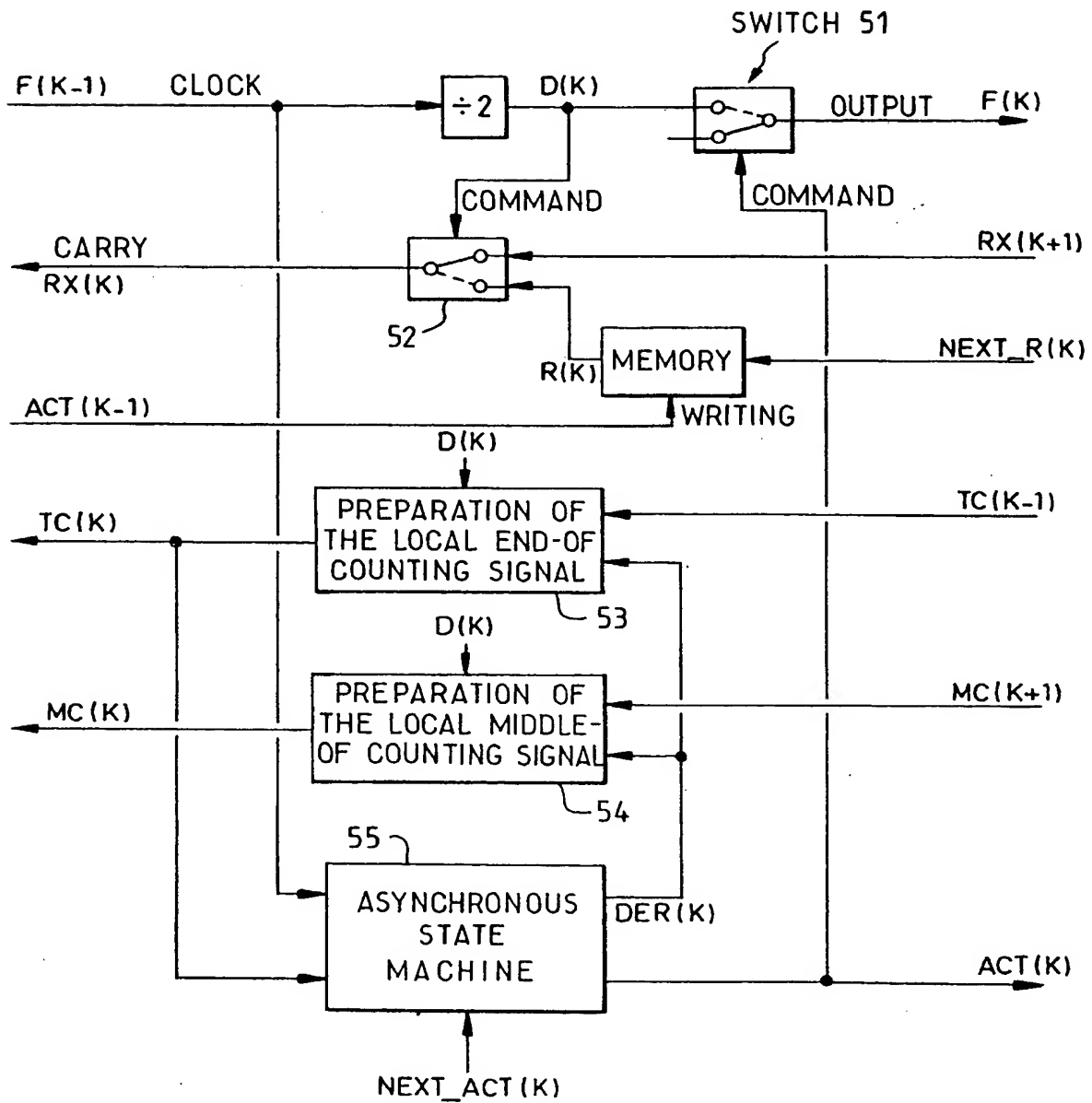


FIG. 11

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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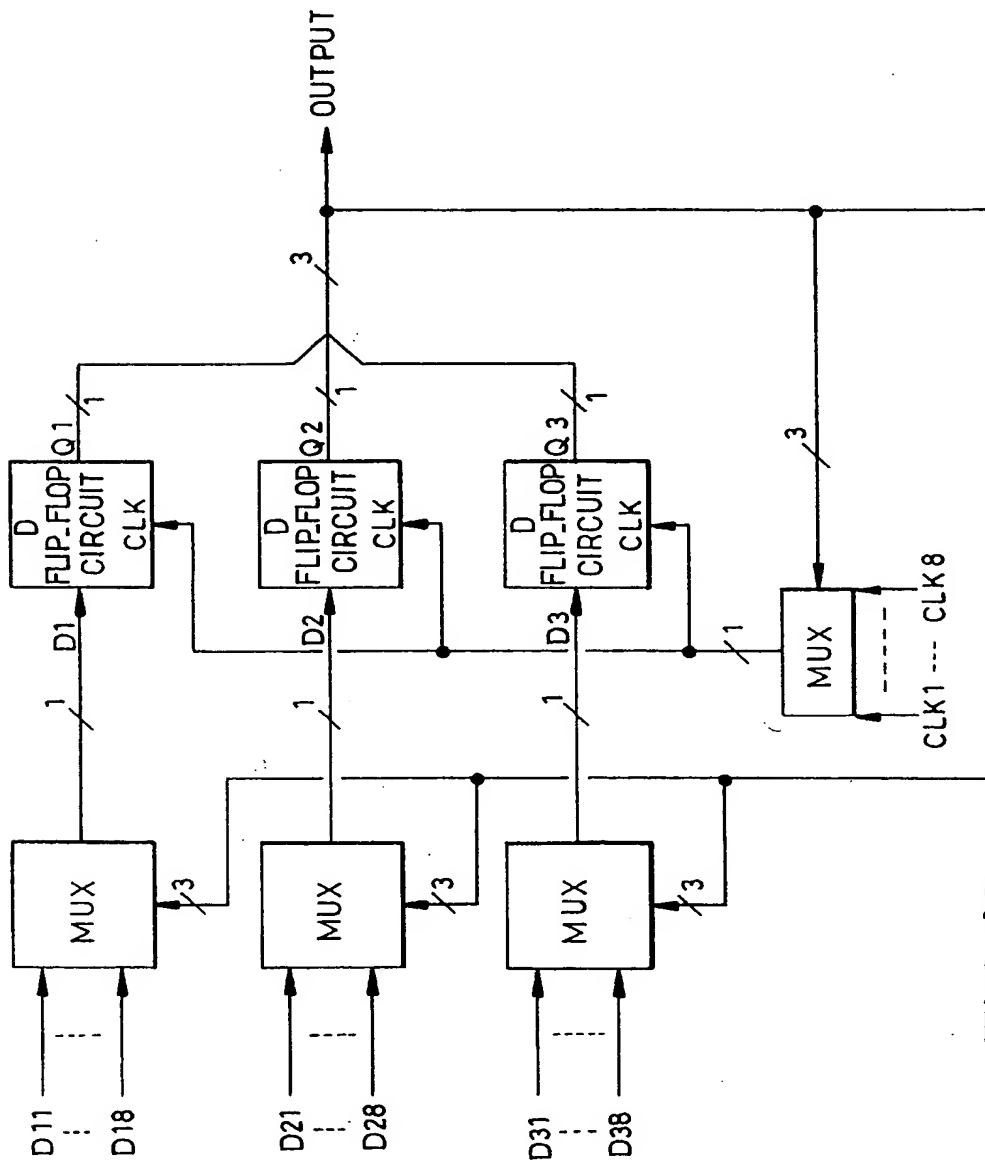


FIG.12

# FREQUENCY DIVIDER WITH FUNNEL STRUCTURE

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*Replacement Sheet*

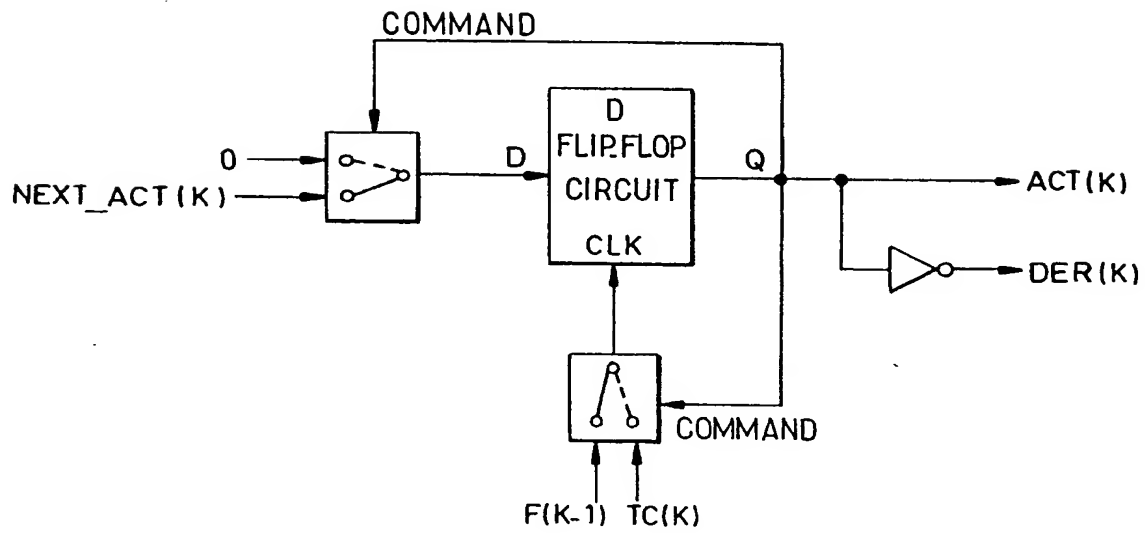


FIG.13